

electrochemistry are therefore cheap and accessible power, experimentation on a semi-industrial scale, men with heads full of ideas and inventiveness in applying them to the industrial needs of the country, more research companies and a further cultivation of the beneficent results of our society meetings.

By thus doing, cheap raw materials will be converted by the electrochemist into valuable products with constantly increasing ease and constantly decreasing cost, and thus electrochemistry will achieve its great *raison d'être* by increasingly ministering to the needs, the comforts and the pleasures of life, and thus it will become an increasingly important factor in social progress.

No modern science can progress if it adopts the mediæval practice of the alchemists, and carefully guards its wisdom for the exclusive use of the initiated. Widespread dissemination of the literature of our science, not only among our own fraternity, but among educated people in general, and even down to the rising generation of expectant men of science, is as necessary to our progress as is the recruiting of the human family to the preservation of the race.

The literature of our science consists of transactions, journals, treatises, monographs and text-books. Without these, and without the constant extension, improvement and dissemination of the same, our science would soon be dead indeed.

The transactions of our societies are the standing record of papers and discussions presented at our meetings. The contents represent the labours of many heads and hands, and the opinions of many minds. As such, they form a permanent record of the latest advances and the best thought in electrochemical lines. They are the reservoirs of information from which the other literature of the science, such as treatises and monographs, is largely compiled. They are of particular value to people who cannot personally attend the meetings which they report. Their value is augmented by being quickly printed and distributed, and the publication committees having that task in their charge should receive the cooperation of all authors in their efforts to prevent the transactions from becoming ancient history before they are issued. We may be pardoned referring with a little pride to the fact that the report of our Niagara meeting was distributed seven weeks from the close of the meeting, and that 25 per cent. of the papers presented at this, our most notable New York meeting, were in print before the meeting began.

The increasing membership of our societies, and the placing of such transactions in scientific and public libraries, are potent means towards interesting and instructing the world in electrochemistry, and recruiting the army of electrochemical workers.

Our text-books, intended to give beginners their first ideas of electrochemistry, should be most carefully written. Nothing sticks so permanently in the mind as a correct idea taken in youth from a good text-book—except an incorrect idea taken from a bad one, and I think that the latter often sticks the hardest. It used to be remarked that every professor elected to a chair of mineralogy in Europe felt himself expected to write a treatise on crystallography—and he generally wrote it; it is, of course, an exaggeration to say that every privat-docent elected to lecture on electrochemistry writes a text-book on the elements of the science, but it is an exaggeration with a grain of truth in it. There are entirely too many imperfect or partisan or downright execrable text-books of this kind; one good one, written by a master, is worth more than all of these poor ones put together. Electrochemistry should also be better presented in the elementary text-books of chemistry and electricity. The interrelation of these subjects is so intimate that the fundamentals of either necessarily include some of the fundamentals of the other, and beginners are wonderfully apt at comprehending the essential fundamental facts if they are skilfully presented. I recall to mind a very complete modern text-book of inorganic chemistry, written by a splendidly-informed chemist, in which the electrochemical part was turned over to an assistant, and, as a consequence, abounds in misstatements. We cannot afford to have our students started wrongly, and it is therefore of the highest importance that our text-books, while being as brief as is necessary, should be as accurate as is possible.

NOTES.

THE monument which was unveiled last month at Bonn, in honour of Prof. Kekulé, stands away from the city and just in front of the building of the chemical laboratories of the University of Bonn, the place in which Kekulé laboured and taught for so many years and with such pronounced and conspicuous success. The statue stands on a granite pedestal, and is life-size and of bronze. On each side of the sculptured figure of Kekulé is a sphynx. The character of the man, simple and unpretentious, yet convincing, is well brought out, and some of his greatest scientific achievements are clearly represented in relief on the pedestal. At the unveiling ceremony many universities and scientific bodies, foreign as well as German, were represented, and so also were numerous firms engaged in the chemical industry.

THE third International Mathematical Congress has been arranged to take place in Heidelberg on August 8–13 of next year. The congress will be divided into six sections, dealing respectively with arithmetic and algebra, analysis, geometry, applied mathematics, history of mathematics, and pædagogics. In addition to the business and sectional meetings, there will be conversaziones, a banquet, and an excursion up the Neckar, and illumination of the Castle. The year 1904 is the centenary of the birth of C. G. J. Jacobi, and the occasion will be celebrated in connection with the congress by the publication of a memorial volume on Jacobi under the authorship of Prof. Königsberger. The secretarial work of the congress is in the hands of Prof. A. Krazer, of Carlsruhe.

THE Anthropological Institute announces that Prof. Karl Pearson, F.R.S., has accepted its invitation to deliver the annual Huxley memorial lecture this year. The lecture will be delivered on Friday, October 16, at 8.30 p.m., in the lecture theatre of Burlington House. Prof. Pearson has chosen for his subject, "On the Inheritance in Man of Moral and Mental Characters, and its Relation to the Inheritance of Physical Characters."

A REUTER message from Strassburg states that the second International Seismological Conference, the object of which is to found an association for the study of seismological phenomena in countries interested in the question, was opened there on July 24. Twenty States were represented. The Statthalter of Alsace-Lorraine, who is patron of the conference, welcomed the delegates in the name of the German Empire.

THE Government has appointed Captain Harry Mackay, a Dundee whaling master, to the command of the *Discovery* relief expedition. The relief ship *Terra Nova* will be manned by an entirely civilian crew, chiefly whalers. The ship is expected to be ready for sea in about a month, and it has been decided, instead of making a long passage round the Cape, to proceed by the Suez Canal. Arrangements will be made to ensure that, after passing Gibraltar, the *Terra Nova* will be towed by fast vessels of the Royal Navy attached to the Mediterranean and East India stations. The relief ship will proceed to Hobart, where she will be joined by the *Morning*.

THE bust of the late Sir William Flower, prepared for the Flower Memorial Committee by Mr. Thomas Brock, was formally presented to the trustees of the British Museum, at the Natural History Museum, on Saturday last. Dr. P. L. Sclater gave an address in the name of, and on behalf of, the 185 subscribers to the fund.

THE Mackinnon research studentships of the Royal Society have been awarded for the year 1903-4 to Mr. F. Horton for physical research, and to Miss A. L. Embleton for biological research.

THE French Association for the Advancement of Science will hold its thirty-second annual meeting this year at Angers from August 4 to 11, under the presidency of M. Levasseur, Administrator of the Collège de France.

GOVERNOR LANHAM, of Texas, has, *Science* announces, issued a proclamation offering a reward of 10,000*l.* from the State to any person who discovers a practical method for eradicating the cotton boll weevil.

AT an extraordinary general meeting of the members of the Jenner Institute of Preventive Medicine on July 22, a resolution to alter the name of the institute to "The Lister Institute of Preventive Medicine," proposed by Sir Henry Roscoe, seconded by Sir Joseph Fayrer, and supported by Prof. W. J. Simpson, was unanimously adopted. A second meeting will be held on August 7, when the resolution will be submitted for confirmation.

THE council of the Society of Arts attended at Marlborough House on Monday, when the Prince of Wales, as president of the society, presented the society's Albert medal to Sir Charles A. Hartley, "in recognition of his services, extending over forty years, as engineer to the International Commission of the Danube, which have resulted in the opening up of the navigation of that river to the ships of all nations."

AN outline programme has been issued for the autumn meeting of the Iron and Steel Institute to be held at Barrow-in-Furness on September 1-4. The president, Mr. Andrew Carnegie, will deliver a short address, and the papers down for reading include the following:—Alloys of iron and tungsten, Mr. R. A. Hadfield; the restoration of dangerously crystalline steel by heat treatment, Mr. J. E. Stead and Mr. A. Windsor Richards; the influence of silicon on iron, Mr. Thomas Baker; the diffusion of sulphides through steel, Prof. E. D. Campbell; the heat treatment of steel, Mr. W. Campbell; the diseases of steel, Mr. C. H. Ridsdale; carbon in iron, Prof. A. Stansfield.

Science announces that the Bufalini prize of the University of Florence will be awarded at the end of October, 1904. This prize is of the value of 240*l.*, and is awarded once every twenty years. The subject is the value of the experimental method in opposition to the speculative method of scientific research.

AN international exhibition is to be opened at Arras, in the north of France, on May 1, 1904, and remain open until the following October. It is under the patronage of the President of the French Republic, the honorary president of the automobile section being the King of the Belgians. Industrial chemistry is dealt with in one of the classes, and another is devoted to alcohol and its production.

IN reply to a question on the position of wireless telegraphy in the Navy, Mr. Arnold-Forster has stated that all battleships, and a very large number of cruisers, are fitted either with the Marconi system of wireless telegraphy or with modifications of that system. The present average expenditure upon wireless telegraphy is about 20,000*l.* per annum, a considerable portion of this amount being paid to the Marconi Company. An agreement with the Marconi Company is now being concluded, and the use of wireless telegraphy throughout the service will be greatly extended in the future.

SOME additional particulars of the International Congress of Science and Arts to be held at St. Louis next year were published in Monday's *Times*. A body of men of learning from all parts of the world will assemble at St. Louis in connection with the congress, and it is hoped their deliberations will stimulate thought, promote science, and thus form a permanent contribution to the world's progress. An administrative board has been entrusted with the arrangements in connection with this new departure, and Prof. Nicholas Murray Butler, of Columbia University, is at the head of it. The main features of a plan proposed by Prof. Münsterberg, of Harvard University, for the conduct of the proceedings of this section have been adopted.

REUTER reports that on July 22, after a period of explosions, there was a flow of lava from Mount Vesuvius.

THE Museum of Practical Geology, Jernyn Street, will be closed to the general public during the painting of the interior from August 1. The business of the Geological Survey will, however, be carried on as usual, and visitors requiring special information will be admitted to the Museum.

THE Rev. G. W. Rawlings, of Ōsaka, Japan, sends us an interesting example of the pertinacity and strength of Japanese sparrows. A pair of sparrows he found flying about his bedroom one morning had begun to build in a corner of the room, and though the beginnings of the nest were cleared away each morning, the sparrows repeated their attempt three or four successive days. A clothes-brush placed in the corner to keep the birds away was found to have been moved by the sparrows, though it was six inches long and two inches wide.

MR. F. W. BRANSON, of Leeds, sends us an account of some experiments made by him with a mixture of radium and barium chlorides in a dry and in a moist state. When the substance was moistened with water and stirred, its radio-activity was only slightly reduced, though the luminosity instantly disappeared, but it was restored by drying for fifteen minutes at 150° C. When placed in benzene the dried salt retained its phosphorescence. Benzene, however, appeared to diminish somewhat the emission of light rays. Exposure of the dried salt for a few hours to a moist atmosphere caused a total cessation of phosphorescence, but not in a dry atmosphere. No action could be observed on a photographic plate exposed to the radiations from the moistened salt for thirty seconds, whereas the dry salt gave a full image in the same time. A much longer exposure of the moist salt gave a faint impression, about equal in amount to that produced by an equivalent amount of the dried salt, when the latter was covered with a thin paper, opaque to light rays.

AT the beginning of this year Mr. A. E. Shipley directed attention in these columns (vol. lxvii. p. 205) to the widely spread belief that a basil plant (*Ocimum viride*) provided a means of protection against mosquitoes. Observations made by Captain H. D. Larymore at Lokoja, Northern Nigeria, seemed to show that the belief was well founded, but Mr. Shipley pointed out that further experiments were needed upon the subject. The article was reprinted in the *British Medical Journal*, and was referred to by many other periodicals; and in consequence requests for seeds of the plant were received at the Royal Gardens, Kew, from many parts of the world. Sir William Thiselton-Dyer has, however, sent to the *Times* of July 27 a report of experiments made on the basil plant in relation to its effect on mosquitoes by Dr. W. T. Prout, at Freetown, Sierra Leone, and he remarks that it "appears to dispose conclusively of the plant's possessing any real protective value." The conclusions arrived at by Dr. Prout as the result of his experi-

ments are:—(1) Growing plants have little or no effect in driving away mosquitoes, and are not to be relied on as a substitute for the mosquito net. (2) Fresh basil leaves have no prejudicial effect on mosquitoes when placed in close contact with them. (3) The fumes of burnt basil leaves have a stupefying, and eventually a destructive, effect on mosquitoes, but to obtain this action a degree of saturation of the air is necessary which renders it impossible for the individual to remain in the room. It is probable, however, that cones made of powdered basil would, when burnt, have the effect of driving mosquitoes away, and to this extent might be found useful.

A REPORT has been issued by the London County Council upon the manufacture of aerated waters in London. It is recommended that, in view of the large consumption of aerated waters, the premises upon which they are manufactured should be registered and periodically inspected in order to ensure a proper standard as regards sanitary conditions.

WE recently noted in these columns the outbreak of ankylostomiasis (infection with a parasitic worm) which has occurred in the Dalcoath mine, Cornwall, reported upon by Drs. Haldane and Boycott. A report has now been issued by the Home Office on an outbreak of the same disease in the Westphalian colliery district in Germany. A case has also been met with in Scotland by Dr. Stockman. In all probability, therefore, this disease is more widespread than was formerly supposed.

DR. TIMBRELL BULSTRODE'S report upon alleged oyster-borne illness following the mayoral banquets at Winchester and at Southampton has been issued by the medical officer of the Local Government Board. Dr. Bulstrode summarises the facts as follows. Two mayoral banquets were given on the same day in two towns. After both banquets a certain percentage of guests, all of whom had partaken of oysters, were attacked with illness of analogous nature, in some cases with definite enteric fever, in others with gastro-intestinal disturbance only. The oysters supplied to both banquets were from the same source (Emsworth), and the oysters from this source were at the same time and in other places proving themselves competent causes of enteric fever.

It is reported that Prof. Kossel, of the Imperial Department of Health, Berlin, supports Prof. Koch's view of the non-transmissibility of bovine tuberculosis to man. He stated at a recent meeting of the Berlin Medical Society that out of all the experiments conducted by the Imperial Board of Health, in two cases only had human tubercle bacilli affected the experimental animals. Prof. Orth, the successor to Virchow in the University of Berlin, on the other hand, states that in his own experiments 10 per cent. of the animals were infected with the tubercle bacillus of human origin. At the recent congress of the Royal Institute of Public Health, Prof. Young, who has collaborated with Prof. Hamilton, of Aberdeen, said that their experiments upon twenty calves left no doubt of the communicability of human tuberculosis to bovines, and Drs. Dean and Todd have proved the same point as regards pigs.

In a paper entitled "Luftelektrizität und Sonnentriebung" (Leipzig), Dr. H. Rudolph develops a theory of the origin of atmospheric electricity. We do not think his theory is likely to meet with general acceptance; the reasoning by which he arrives at the laws on which his mathematical investigation is based is, to say the least, by no means convincing. In an appendix the author mentions a method which he has invented for employing a captive balloon to collect from the upper atmosphere the

large amount of electrical energy which he believes to be now running to waste, and he complains that the public have not given his scheme the support that it deserves.

THE "spintariscopes" devised by Sir William Crookes to show the scintillations which are produced on a blende screen when a piece of radium nitrate is brought near it, is now made by several scientific instrument makers. Mr. A. C. Cossor, of 54 Farringdon Road, has sent us one of these instruments, which consists of a short brass tube having at one end a blende screen with a speck of radium salt about a millimetre in front of it, and at the other end a simple convex lens. The instrument is very satisfactory, and shows the scintillations wonderfully well; it provides a convenient means of observing the action of radium, and can be recommended as a waistcoat-pocket instrument of scientific value.

WE have received a copy of the observations made at the Batavia Observatory during the year 1901; it contains hourly meteorological values and seismometric records, but the magnetometer was out of action during the year, owing to its removal to Buitenzorg. We are glad to see that the Netherlands Government propose to undertake a magnetic survey of the East Indian Archipelago, extending from longitude 95° to 140° ; this will be a valuable addition to the magnetic survey of British India. An appendix to the volume contains a discussion of the anemometric observations for the ten years 1891–1900. This laborious investigation shows that calms largely predominate, especially during the westerly monsoon, from December to April. The direction of the wind during this period is chiefly from the north-western quadrant. From April to November, northerly and north-easterly winds predominate by a large percentage. The greatest horizontal displacement of the air occurs between August and October, during which time easterly trade-winds largely prevail. Another appendix contains valuable electrical and meteorological observations made during the total eclipse of the sun on May 18, 1901, at various stations.

THE *Quarterly Journal* of the Royal Meteorological Society (No. 127, July) contains an important and interesting paper on the prevalence of gales on the coasts of the British Islands during the thirty years 1871–1900, based on the data collected annually in the Meteorological Office for the purpose of testing the accuracy of storm warnings issued. We can only refer here to some of the general results:—the mean annual number of gales experienced on the west coasts is 29.6; of the total number 82 per cent. occur in the winter half-year; on the north coasts the mean number is 25.7, with a percentage of 84 in winter; on the south coasts, mean 19.1, winter percentage 80; on the east coasts, mean 15.6, with 84 per cent. in the winter half year. As regards direction, the mean results show that on the west coasts about 68 per cent. of the gales blew from the Atlantic, or equatorial directions, and about 26 per cent. from the Arctic, or polar directions; on the north coasts about 66 per cent. blew from equatorial, and 30 per cent. from polar quarters; on the south coasts the numbers were respectively 73 and 25 per cent; the results for the east coasts show that less than 53 per cent. blew from equatorial directions, and more than 44 per cent. from polar quarters. The prevalence and direction of gales in each division are plainly illustrated by wind-roses.

AN account of the flora of the north island of Nova Zembla appears in the *Bulletin du jardin impérial botanique* of St. Petersburg. The author, Mr. Palibin, observes that the flowering plants are most closely allied to those found in the Arctic regions of Asiatic Russia, but the algal flora resembles rather that of Spitsbergen.

A SECOND paper by Prof. Vines is published in the *Annals of Botany*, and gives an account of further investigations into the action of proteid-dissolving ferments in plants. Certain divergences appear to exist between the observations of the author and other experimenters; these are traced to the use of different antiseptics, so that it becomes necessary to try several antiseptic substances before formulating any conclusions as to the digestive power of the ferments under consideration.

THE formation of the first tropical experiment station in the British Empire in Ceylon, has already been referred to in these columns. Apart from agricultural experiments and the cultivation of economic products, questions of pure scientific interest will doubtless receive attention. In his report, Mr. Wright, the controller of the station, announces that experimental plots have already been laid out to determine how far the cultivated varieties of cacao plants bearing pure purple or pure white seeds will breed true. Should this be the case, the results produced by crossing will give valuable evidence for testing the Mendelian laws.

AMONG other articles, the *Transactions* of the Manchester Microscopical Society for 1902 contain some interesting observations by Mr. J. Barnes on the microscopic structure of the mountain limestone of Derbyshire. In the first place, it is recorded that the rock contains large numbers of very minute but perfectly formed quartz-crystals, frequently formed round a jaspideous nucleus. Of special interest is the description of a mottled phase of the mountain limestone, in which the dark portions have been produced by the carbonaceous matter contained in foraminifera, with which the rock is crowded.

THE Geological Survey has issued a memoir on the geology of the country around Reading, by the late Mr. J. H. Blake, edited by Mr. H. W. Monckton. The district is a part of the London Basin, with a foundation of Chalk, overlain by Reading Beds, London Clay, Bagshot and Bracklesham Beds, with extensive coverings of plateau and valley drifts. The Reading Beds are of special interest, and many detailed sections of the strata are given, with an analysis, by Dr. W. Pollard, of the mottled clay which is so largely worked for brick- and tile-making. There are also figures of some of the plant-remains which are found in the strata. A list of fossils from the basement-bed of the London Clay is likewise given. Mr. Monckton has contributed many notes relating to the superficial deposits.

SOME interesting facts referring to the cultivation and economic uses of the potato in Germany were recently stated by the American Consul-General in Berlin in connection with a technical exhibition there. In 1901, for every 10,000 inhabitants 160 acres were planted with potatoes, against 98 acres in France, 31 in Great Britain and Ireland, and 34.8 in the United States. The sandy plains of northern and central Germany are well adapted by nature to the cultivation, and elaborate experiments in scientific fertilising and cultivation have increased the production per acre by about 38 per cent. in the last ten years. The result has been that the crop reached the danger point of over-production in 1901, and accordingly there was in that year an enormous increase in potato alcohol, and the market was glutted with raw spirit. In February, 1902, there was an exhibition in Berlin to illustrate and promote the use of denaturised alcohol for technical and industrial purposes, and it has been repeated this year. Besides alcohol, the technical products of the potato are starch, starch syrup, potato flour, dextrin, and starch sugar. The production of

these during the last ten years has increased rapidly, as has the export also. Last year the exports of potato flour and starch reached 45,970 tons, or more than double those of 1900, while the export of dextrin was 14,047 tons. The United Kingdom is the largest purchaser of German potato starch, the imports last year being 23,827 tons. The Consul-General adds that the law of 1887 regulating the production and use of untaxed alcohol for technical purposes was one of the wisest and most far-seeing of enactments, for Germany has profited largely by the stimulus thereby given to the cultivation of the potato and to the employment of cheap spirit in the chemistry and the industrial arts.

WE have received a copy of an article published in the *Natural History and Scholastic Abhandlungen* of Leipzig, by Mr. F. Mühlberg, on the object and extent of the instruction in natural science given in the higher middle-schools.

WE have received two further instalments of Messrs. Jordan and Fowler's valuable reviews of Japanese fishes, in course of publication in the *Proceedings* of the U.S. Museum, the one being devoted to the carp group, or cyprinoids, and the other to the cat-fishes, or siluroids. In both groups several new forms are described, some of which have, however, been already referred to in preliminary notices. A new genus of cat-fish receives the name of *Fluvidraco*, and apparently includes the well-known "yellow dragon" of the rivers of China. In another fasciculus of the same publication Mr. T. Gill discusses the affinities of the opah, or king-fish, and finds that he is not able to accept in their entirety the views on this subject recently published by Mr. G. A. Boulenger. He has some interesting observations on the origin of the name "opah," which appears to have been imported from the west coast of Africa, but does not seem to be the proper native title of the fish to which it is now applied.

THREE other papers from the *Proceedings* of the U.S. Museum are also to hand. In one of these Mr. D. W. Prentiss describes as new an imperfect mink skull from the shell-mounds of Maine. In the second Mr. A. N. Caudell discusses the orthopterous insects of various States, with descriptions of new species; and in the third Mr. J. E. Benedict revises the crustaceans of the genus *Lepidopa*.

AN issue of the *Circulars and Agricultural Journal* of the Royal Botanic Gardens at Ceylon contains an account, by Mr. E. E. Green, of a recent abnormal and remarkable increase in one district of the numbers of the so-called lobster-caterpillar (*Stauropus alternus*), which affects tea-plants. Until quite recently this caterpillar was so uncommon that good specimens were regarded as prizes by collectors; but latterly it has made its appearance in enormous numbers on certain plantations in the Kalutara district, where it has become a perfect "tea-pest." The reason for this sudden increase has not been ascertained.

ALL that Mr. E. Thompson-Seton writes with regard to the habits and ways of animals is well worth reading, and we are therefore glad to welcome an article from his pen in the *Smithsonian Report* for 1901 entitled "The National Zoo at Washington, a Study of its Animals in Relation to their Natural Environment." The author describes in some detail the history of the formation of this great and important undertaking, and the prime object which the founders had before them, namely, the preservation of as many of the larger North American animals as possible under conditions assimilating, so far as practicable, to their natural surroundings. In the case of many species, such as the wapiti, the bison, and the pronghorn, the experiment

has, up to the present, been a decided success. There are, however, a number of mammals, inclusive of the bighorn sheep, the true blacktail deer, the mule-deer, the moose, the white goat, and the grizzly bear—all more or less in danger of extermination—which have not yet been established in refuges of their own. This, it is said, is largely due to lack of funds; and the author points out that if the Alaskan brown bear—the largest living member of its kind—be not soon established in the gardens, it will be too late. Many interesting traits in the habits of American mammals are recorded, notably the fact that the prongbuck expands the hairs of its white rump-patch in a disc-like manner when alarmed, after the fashion of the Japanese and Peking deer, the white patch, when thus expanded, forming a conspicuous "recognition mark."

MESSRS. WATTS AND CO. have issued for the Rationalist Press Association, Ltd., a sixpenny edition of a selection of Tyndall's lectures and essays from "Fragments of Science." The famous British Association address at Belfast in 1874 is included, and also the biographical sketch of Tyndall in the "Dictionary of National Biography."

SINCE its publication in 1881, Mr. W. Robinson's delightful book on "The Wild Garden" has been the means of introducing many lovers of plants to new and beautiful aspects of vegetation obtained by placing hardy exotic plants under conditions where they will thrive without further care. The fifth edition has just been issued by Mr. John Murray, and will appeal to a larger circle of readers than that which derived ideas from the original work. The illustrations are all woodcuts by Mr. Alfred Parsons.

THE first part of the fifteenth volume of the *Proceedings* of the Royal Physical Society of Edinburgh, a copy of which has been received, deals with the work of the session 1901-1902. In addition to the opening address by Dr. David Hepburn, vice-president of the society, on some morphological evidences of the evolution of man, the volume contains, amongst others, papers by Mr. Goodchild on the origin of rock-salt and on observations upon the bathymetrical distribution of reef-building corals, and one by Dr. Munro on the prehistoric horses of Europe and their supposed domestication in Palæolithic times.

THE additions to the Zoological Society's Gardens during the past week include a Sooty Mangabey (*Cercocebus fuliginosus*) from West Africa, presented by Mrs. Watkins; a Ring-tailed Lemur (*Lemur catta*) from Madagascar, presented by Mr. H. P. Jaques; a Suricate (*Suricata tetradactyla*) from South Africa, presented by Captain C. P. Harvey; two Kinkajous (*Cercoptes caudivolvulus*) from South America, presented by Miss C. Wallace Dunlop; a Himalayan Whistling Thrush (*Myiophonus temminckii*), a Blue-winged Siva (*Siva cyanoptera*), a Lesser Blue-winged Pitta (*Pitta cyanoptera*) from the Himalayas, presented by Mr. E. W. Harper; a Cardinal Grosbeak (*Cardinalis virginianus*) from North America, presented by Mrs. F. S. Stevenson; a Greek Tortoise (*Testudo graeca*), European, presented by Mrs. F. Bailey; two Wanderoo Monkeys (*Macacus silenus*) from Malabar, a Common Crowned Pigeon (*Goura coronata*), a Slater's Crowned Pigeon (*Goura slateri*) from New Guinea, a White-throated Ground Thrush (*Geocichla cyanonotus*), a Bengal Pitta (*Pitta bengalensis*), two Indian Rollers (*Coracias indica*), three Pond Herons (*Ardeola grayi*), five Scarlet-backed Flower-peckers (*Dicaeum cruentatum*), two Two-banded Monitors (*Varanus salvator*) from India, deposited.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN AUGUST:—

- August 2. 8h. 1m. to 11h. 5m. Transit of Jupiter's Sat. III. (Ganymede).
 8. 13h. 10m. to 15h. 56m. Transit of Jupiter's Sat. IV. (Callisto).
 9. 11h. 27m. to 14h. 32m. Transit of Jupiter's Sat. III. (Ganymede).
 10-13. Epoch of the great Perseid meteoric shower (Radiant point $45^{\circ} + 57^{\circ}$).
 12. 11h. Venus at maximum brilliancy.
 13. 10h. 54m. Minimum of Algol (β Persei).
 15. Venus. Illuminated portion of disc = 0.236; of Mars = 0.877.
 16. 14h. 50m. to 17h. 54m. Transit of Jupiter's Sat. IV. (Callisto).
 19. 13h. 16m. to 13h. 46m. Moon occults λ Gemorum (Mag. 3.6).
 28. Perihelion Passage of Borrelly's comet (1903 c).
 29. Mars $1\frac{1}{2}^{\circ}$ south of α Libræ (mag. 2.9).

PHOTOGRAPHS OF COMET 1902 b.—Prof. R. H. Curtiss reproduces on their original scale, and minutely describes, some excellent photographs of Perrine's comet (1902 b) in the Lick Observatory Bulletin, No. 42.

The photographs were secured with the Pierson camera, which has a Dallmeyer objective of 15cm. aperture and 82.6cm. focal length, the Floyd telescope of 12cm. aperture and 200cm. focus serving as a guiding telescope. The nine photographs reproduced show very clearly the remarkable changes which took place in the size and form of the comet's tail.

THE NEW OBSERVATORY FOR BULUWAYO.—The *Buluwayo Observer* for March 21 gives an interesting account of the new observatory which is being founded in that city by the Jesuit mission.

Father Goetz, who obtained brilliant successes at the Paris University, and for eighteen months has been working at the Georgetown (U.S.A.) Observatory, has been appointed director, and has taken with him a fairly complete outfit of instruments for magnetic and meteorological observations. It is proposed that, as the work progresses, other instruments for astronomical work shall be added, and part of the programme for the new observatory is to undertake the mapping and cataloguing of variable stars in the southern hemisphere on similar lines to those followed at Georgetown for the northern variables. For this purpose the mission negotiated for the loan of an equatorial telescope from the Carnegie Institution, but the negotiations have not yet been successful.

The Chartered Company has given two blocks of land for the observatory site, and the Government has granted assistance in the erection of the necessary buildings (*Zambesi Mission Record*, July).

THE SYSTEM OF ϵ HYDRÆ.—In No. 36 of the Lick Observatory Bulletin Prof. Aitken gives the details of, and discusses, his observations of the binary system ϵ Hydræ, which, since its discovery by Schiaparelli in 1888, has been observed to possess a rapid motion. The various observations, except those made at Greenwich, are satisfactorily represented by an ellipse having the following approximate elements:—

$$T = 1901.1, P = 15.7 \text{ years}, e = 0.685, a = 0''.24.$$

$$\Omega = 109^{\circ}.5, i = 35.5, \lambda = 264.7, n = +22.293.$$

The components differ fully two magnitudes in brightness, and their maximum separation is only $0''.25$.

There is a third star at a distance of $3''$ forming, with the close double, the double star Σ 1273, and the observations show that together they form a ternary system, whilst the spectrograms obtained with the Mills spectrograph, and measured by Dr. H. D. Curtis, show that this third star has a line of sight velocity varying from $+45.2$ on November 28.02, 1899 (G.M.T.), to $+29.1$ on November 7.06, 1901, and that the visual and spectrographic binary systems are identical. If this is correct the spectrum observations should show a slow increase in the velocity of recession for the next year or two, and then a nearly uniform velocity until 1912.